

TAXONOMIC NOTES ON *EOLIS MILITARIS*
ALDER AND HANCOCK, 1864
(OPISTHOBRANCHIA, EOLIDACEA)

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SUMMARY

Eolis militaris Alder and Hancock (1864) is identical with and a prior synonym of *Learchis indica* Bergh (1896). *Caloria* Trinchese (1888) and *Learchis* Bergh (1896) are anatomically identical, the respective type species being distinguished by dorsally emarginate and dorsally rounded jaws.

INTRODUCTION

Eolis militaris is a fairly common eolid mollusc at localities in the Gulf of Kutch on the north-western coast of India. As it has not previously been anatomically studied nor its systematic position and relationship to other genera and species determined, one of us (K.R.N.) collected and observed living specimens and the other (R.B.) examined the preserved material and investigated the taxonomy.

We are indebted to the Fisheries Commissioner, Gujarat State, Ahmedabad, India, for permission to report on the Gulf of Kutch specimens. Mr. Gordon A. Robilliard, Friday Harbour Laboratories, Oregon, generously presented Hawaiian specimens already identified as *Learchis indica* (Baba, 1969). A grant from the Science and Industry Endowment Fund, C.S.I. R.O., Melbourne, enabled one of the writers (R.B.) to carry out this and other research.

DESCRIPTION AND TAXONOMY

Since the original description of the unique type specimen, *Eolis militaris* has been reported twice: by O'Donoghue (1932) from Ceylon and by Narayanan (1969) from the Gulf of Kutch. The only taxonomic advancement was the transference (Farran, 1905) to *Hervia* where it has remained.

Preserved specimens from the Gulf of Kutch have been examined and compared with specimens from other localities. The Gulf of Kutch specimens have typical facelinid appearance with 6-7 rows of cerata in the right liver, the anus behind two rows of the 4-5 row second liver group, and tentaculiform foot corners, but with special characteristics of smooth rhinophores and conical unarmed penis. The 25mm long living animals had a translucent body with a line of reddish-orange along each side below the cerata and forward to the tentacles; a V-shaped patch of the same colour lies on the head with the point between the rhinophores and the anteriorly directed arms uniting with the lateral lines on the

tentacles; the tentacles and rhinophores had yellowish tips, and the cerata were brick-red with light black digestive glands and yellowish tips. The jaws and radula agree completely with earlier descriptions (Alder and Hancock, 1864; Eliot, 1906; O'Donoghue, 1932).

The special characteristics of this species mentioned above, i.e. smooth rhinophores and conical unarmed penis, combined with facelinid liver branching, necessitate the transference of *Eolis militaris* from *Hervia* (which is a synonym of *Facelina*) to *Learchis*. The type species of the latter, *L. indica* Bergh (1896: 386) has been lately excellently redescribed from Japanese and Hawaiian specimens (Baba, 1969), from which it is obvious that *Learchis indica* is identical with and a junior synonym of *Eolis militaris*.

The genus *Caloria* Trinchese (1888; Haefelfinger, 1960: 234) also has all the characteristics of *Learchis*, and their respective types, *C. maculata* Trinchese (1888) and *L. indica* Bergh (1896; = *Eolis militaris* Alder and Hancock, 1864), are separated only by the shape of the jaws, dorsally indented in the former and dorsally rounded in the latter. Similar variation occurs between species of other genera; for example the deeply indented jaws of *Facelina (Acanthopsole) quatrefagesi* (Vayssi re, 1888: 42, pl. 7, fig. 140) and the rounded jaws of *F. (A.) rubrovittata* (A. Costa, 1866; Vayssi re, 1888: 36). It is therefore unwise to maintain two taxa for this undoubted single genus. Accordingly, *Caloria militaris* (Alder and Hancock) will be the correct name for this species.

A full synonymy of the species is listed, together with the material examined.

Caloria militaris (Alder and Hancock)

Eolis militaris Alder and Hancock, 1864: 144, pl. 33, fig. 15; Eliot, 1906: 1007.

Hervia militaris. Farran, 1905: 331; O'Donoghue, 1932: 143; Satyamurthi, 1952: 350, pl. 33, fig. 4a - c; Narayanan, 1969: 211.

Learchis indica Bergh, 1896: 386, pl. 16, fig. 1 - 4; Baba, 1969: 399, pl. 27.

Aeolidia dangeri Risbec, 1928: 252, pl. 9, fig. 1.

Hervia dangeri. Risbec, 1953: 136, fig. 75a - f.

Learchis howensis Burn, 1966: 25, fig. 7 - 10.

Material

1. South reef lagoon, Lord Howe Island, 2 January 1938, 1 specimen (holotype of *L. howensis* Burn) collected by Joyce Allan and R. Baxter, Australian Museum no C65663.
2. Funafuti, Ellice Islands, central Pacific, 1897, 1 specimen collected by Charles Hedley during the Royal Society Expedition to study coral atoll origins, A.M. no 6263. New record for this area.
3. Kaneohe Bay, Oahu, Hawaii, July 1968, 3 specimens on *Pennaria* hydranths, collected by Gordon A. Robilliard, National Museum of Victoria no. F27353.
4. Dona Reef, Gulf of Kutch, western India, December 1966 - November 1968, 7 specimens collected by K. R. Narayanan, deposited in the Museum of the Fisheries Research Station, Jamnagar, Gujarat, India.

Distribution. INDO-WEST PACIFIC: southern and western India (Alder and Hancock, O'Donoghue, Narayanan), Amboina (Bergh), New Caledonia (Risbec), Japan and Hawaii (Baba), Lord Howe Island and Funafuti (Burn).

REMARKS ON OTHER SPECIES ASSIGNED TO *CALORIA*

Marcus (1958: 58) noted three Indo-West Pacific species that were possibly acceptable to the genus *Caloria*.

1. *Hervia rosea* Bergh (1889: 677; 1890: 877) from Amboina is a large (55 mm live length) species with the cerata set in broad arches along each side and the anus projecting at mid-length of the rear leg of the second arch on the right side. These are favorine characteristics, hence the species cannot belong to a faceline genus such as *Caloria*. Smooth rhinophores and unarmed penis plus cerata set in more than one series in the liver arches suggest that this species is a *Godiva* as intimated by Macnae (1954: 9) and Lemche (1964: 56). Baba and Hamatani distinguish those *Godiva* species without a penial hook as *Setoecolis* (1965: 108), but there is little justification for this move as the presence or absence of such a hook must be regarded as a specific characteristic.

2. *Caloria guenanti* (Risbec, 1928: 244; 1953: 155) from New Caledonia is a small 7 mm long species with a single series of four cerata in the right liver and the anal position not stated. The rhinophores are weakly annulate. The elongate cuspidate radular teeth suggest that this is a cleioproct species, hence the inference that the anus opens behind the first row of two cerata in the posterior liver. *C. guenanti* is obviously a favorine of some kind; if the right liver is a simple row it could be assigned to *Herviella*, if an arch to *Favorinus*, *Cratena*, *Amanda* or *Noumaella*.

3. *Caloria australis* Risbec (1937: 162; 1953: 155) from New Caledonia is an even smaller species (5 mm) with annulate rhinophores and five rows of cerata in the right liver. The anal position is not clearly defined, though the description places it to the right of the pericardium and a little behind the genital aperture, and from which it could be interpreted as opening in the interhepatic space or acleioproct. The radular teeth are very similar in shape to those of the acleioproct genus *Njurja* Marcus and Marcus (1960b: 921, fig. 75), which furthermore has an unarmed penis, tentaculiform foot corners, five rows of cerata in the right liver, and perfoliate rhinophores. *C. australis* would be better placed in *Njurja* where it would be separated from the type species, *N. netsica* Marcus and Marcus, by annulate rhinophores and asymmetrical hammer-like penis.

The remaining species is the trans-Atlantic *Learchis poica* Marcus and Marcus (1960a: 183) for which supplementary descriptions have been given by Edmunds (1964: 18; 1968: 208). This differs from *C. maculata* and *C. militaris* in a number of points, namely annulate rhinophores, broad radular teeth, and a reduced penial gland at the base of the conical penis. Cerata mounted on arches in the posterior liver are common to both *C. maculata* and *L. poica*. It is better to retain *L. poica* in *Caloria*, than to build upon these subjective differences and create a new monotypic genus for it.

The *Caloria maculata* of Pruvot-Fol (1951: 60; 1954: 397) was re-named *Hervia costai* Haefelfinger (1961), but according to Schmekel (1967: 269) this is synonymous with the favorine, *Cratena peregrina* (Gmelin, 1791).

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